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# Early high school start times affect teens' ability to learn, studies find

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The stereotypes are familiar.

Teenagers are moody.

Short-tempered.

Lazy.

They struggle to wake up in the morning, and sometimes fall asleep once they get to school.

Such behavior might not always be their fault, though. Biology -- the way teens are put together -- and high school schedules could be a big part of the problem.

"Starting high school early (in the day) is probably one of the worst things you can do as far as timing the day, as far as adolescents being alert or ready," said Susan Wooley, executive director of the American School Health Association.

The July issue of the Archives of Pediatrics and Adolescent Medicine reports a growing body of evidence that later school start times are good for teenagers.

Yet most U.S. high schools, including most in



With one last inspection of her attire by her mom, Kim, which results in a final straightening of her collar, Bluffton High School senior Gloria Abron is at last ready to head off to school at 7:05 a.m. Thursday.

JAY KARR

The National Sleep Foundation lists benefits associated with later high school start times: • Less likelihood of depressed moods • Reduced likelihood of tardiness • Reduced absenteeism •

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Beaufort County, start at or before 8 a.m. That makes for a long day that is out of sync with teens' bodies.

To make it to first period, students must wake up between 5:45 a.m. and 6:30 a.m. to shower, eat breakfast and travel to school, according to the article. They might have to wake up earlier if they're riding the bus.

In Beaufort County, public high schools start about 7:30 or 7:45 a.m. -- before most elementary schools. Some of the county's private high schools start a little later, closer to 8 a.m.

Kim Abron knows firsthand that many teenagers simply don't function well in the morning. She and daughter Gloria, a Bluffton High School senior, battle it out every morning to get her out of bed at 6 a.m.

"Her alarm starts, and I have to go up there two or three times before she will actually get up," Abron said. "Sometimes I'll go up there and the alarm clock is still going off while she's in bed."

Ending the morning wars is not just a matter of going to bed earlier the night before.

She said Gloria goes to her room about 10:30 p.m. on school nights but can't fall asleep until at least 11 p.m. Sometimes, she's still awake at midnight.

Science says that's to be expected.

## SCIENCE OF SLEEP

Biological sleep patterns among teenagers are different from younger children and adults, sleep researchers say.

During puberty, sleep patterns change, and adolescents are prone to go to bed later and rise later, according to a 2005 article by two sleep researchers prepared on behalf of the National Association of Secondary School Principals.

Many teenagers are not physiologically ready to fall asleep until 11 p.m. Their ideal wake-up time is about 8 a.m.

That means teen bodies are programmed to be asleep when most are at their desks, in the middle of first period.

Waking teens for school before dawn not only deprives them of sleep, but "you're asking them to wake up and be ready to learn at the point in the 24-hour cycle where their... alertness is at its lowest," according to Judith Owens, an authority on pediatric sleep and a pediatrician at Hasbro Children's Hospital in Rhode Island.

An 8:30 or 9 a.m. start time would be better for high school students, according to Francis O'Brien, a registered sleep technician who works at Palmetto Pulmonary Medicine in Beaufort.

Better grades • Reduced risk of car crashes caused by falling asleep • Reduced risk of metabolic and nutritional problems associated with insufficient sleep, including obesity  
**PRIVATE SCHOOLS** Choosing a start time is more challenging for independent schools that serve students in kindergarten through high school in the same building, leaders of private schools in Beaufort County say. "The research is clear that a later start time is more in line with an adolescent's natural body clock," said Randy Wall, headmaster at Beaufort Academy. But Wall said that's not the case for elementary students, who are awake and ready to learn early in the morning. "We think our 8 a.m. start is a pretty good, happy medium for us," Wall said. Hilton Head Preparatory School is changing its high school start times slightly this year -- from 8 a.m. to 8:15 a.m. Richard Basirico, head of the Upper School, said different start times for the Upper and Lower schools would relieve congestion in the parking lot. The school decided to push back start times for older students because of the research. Although it's only a 15-minute difference, he said students could benefit from the change. "We'll see," he said. "We hope they will."

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## NATIONAL VIDEOS

O'Brien, whose son is a recent Beaufort High School graduate, said part-time jobs, lots of homework and extracurricular activities often make it nearly impossible for teens to get the nine hours of sleep researchers recommend.

If they get home at 8 or 9 p.m., teens can't fall asleep right away. All that vigorous activity leaves them "all wound up," O'Brien said.

Add to that a biological tendency to stay up later and social pressures to be awake chatting on cell phones or computers, and the result is tired teenagers struggling through the school day.

## **TOO LITTLE REST**

Karly Johnson, a senior at Hilton Head Island High School, dreads the sound of her alarm clock about 6 a.m. She usually hits the snooze button once or twice before dragging herself out of bed.

Johnson said it's hard to fall asleep before 11 p.m. That means she typically sleeps just seven hours on school nights.

"In that first 15 and 20 minutes of first block, I'm thinking, 'Why am I not in my bed?' " Johnson said. "I'm not prepared to learn. It's just too early for me."

Sleep researchers say teens need about nine hours of sleep a night, as much as when they were children.

But the typical teenager is chronically sleep-deprived, studies have found.

A 2006 National Sleep Foundation Poll found only one in five U.S. adolescents got nine hours of sleep on school nights. The average high school senior, the poll said, misses 12 hours of needed sleep over the course of a single week.

The same poll found about a quarter of high school students fall asleep during class or while doing homework at least once a week.

The Archives of Pediatrics and Adolescent Medicine says too little sleep can affect teens' health, attention span and academic performance. It can also make them moody.

Johnson observed the poll's findings in class.

She said a couple of kids usually are sleeping -- and more have their heads down on the desk -- in first period. And that's an advanced-placement class, filled with the school's brightest students.

"If class was even at 8 a.m. or 8:30 a.m., that would be a lot better," Johnson said.

Deon Furman said waking up her daughter isn't the problem.

It's keeping the Beaufort High School sophomore awake after she gets home from school and softball practice. That's not surprising since her day starts before 7:30 a.m. and lasts until at least 5:30 p.m.

"As soon as she sits down, she wants to take a nap," Furman said. "She comes home and crashes before she can do anything."

## **ACADEMIC EFFECTS**

It's not just that teens often sleepwalk through the day. Research suggests significant academic effects associated with later high school start times, among them decreased dropout rates.

Public schools in Minneapolis -- an urban district where about 65 percent of students qualify for subsidized meals -- were among the first to push back high school start times. In 1997, the

Minneapolis School District moved them from 7:15 a.m. to 8:40 a.m.

The Center for Applied Research and Educational Improvement at the University of Minnesota analyzed the results and found improved student attendance and enrollment rates, less sleeping in class and less student-reported depression.

A study published in 2005 in the official journal of the American Academy of Pediatrics found students performed better in the afternoon than in the morning.

About 60 high school students in an advanced-placement biology class kept sleep diaries. Performance on computer-administered vigilance tests was measured at various times of the day.

Students in early morning classes said they had to work harder and were tired and less alert.

In their book on the science of kids, "NurtureShock," journalists Po Bronson and Ashley Merryman devoted a chapter to the price children pay for too little sleep.

The book cites a 2003 study by a researcher at Tel Aviv University, who sent fourth- and sixth-grade students home with instructions either to go to bed earlier or stay up later for three nights.

The children also received a wristwatch-like device to track sleep. Researchers then measured neuro-biological functioning of the children through a computerized test.

They found the performance gap caused by an hour's difference in sleep was sizable -- bigger than the difference between a normal fourth-grader and normal sixth-grader. That suggests a sleepy sixth-grader will perform in class as a fourth-grader would.

Some research has shown students who make better grades get more sleep.

"Every study done shows this correlation -- from second- and third-graders in Chappaqua, New York, up to a study of eighth-graders in Chicago," according to "NurtureShock."

## **SOOTHING THE MOODY BEASTS**

Multiple studies suggest other benefits to later high school start times.

The July study published in Archives of Pediatrics and Adolescent Medicine found that giving teens just 30 extra minutes in the morning leads to more alertness in class, less tardiness and fewer visits to the health center. Some students said they ate better breakfasts.

And some parents report their kids seem to be in better moods.

"Pretty much everything we looked at seemed to improve pretty dramatically," said Owens, lead researcher with the study.

The study was conducted at St. George's School, a private school in Rhode Island. Starting times were shifted from 8 to 8:30 a.m., and class times were cut five to 10 minutes to avoid a longer school day.

The number of students reporting at least eight hours of sleep jumped from 16 percent to 55 percent after the change and a two-month trial period. First-period tardiness decreased by nearly half.

"We can't imagine going back," said Patricia Moss, assistant head of school at St. George's.

At first, teachers were concerned about the loss of instructional time and resisted the change, Moss said.

But after the switch, they reported improvements in student alertness made up for that lost time. Teachers voted overwhelming to make the change permanent.

Other research conducted during the past 15 years shows similar results. In most of those studies, start times were delayed longer than 30 minutes.

## **OBSTACLES TO CHANGE**

Later high school start times are not without complications or opposition, however.

Kyla Wahlstrom, who researched school start times for the Minneapolis schools, published an article in the Archives of Pediatrics and Adolescent Medicine this summer seeking to explain why more schools haven't made the switch.

"Changing the start time of any school engenders the same kind of emotional reaction as does a district's deliberations about the closing of a school or making school boundary changes," she wrote. "The time school starts is felt to be sacrosanct by those who have come to rely on it as a predictable part of their day and life."

A survey published in 2005 of 345 randomly selected high schools across the nation said commonly cited barriers to changing start times included effects on sports practices and after-school activities and the expense of reworking bus routes. Other stumbling blocks have been cited, as well. Some schools allow outside groups to use their buildings in the afternoon. Some students get out of class early to work a part-time job.

Beaufort County Superintendent Valerie Truesdale said she is familiar with research on start times and said the topic has been discussed at principals' meetings, particularly during her first year with the district.

Dan Durbin, principal of Beaufort High School, said he has discussed the issue with parents and at School Improvement Council meetings. Many parents, he said, worry moving the start time up would make extracurricular activities and part-time jobs unworkable.

"The later you start, the later everything else ends," Durbin said.

Truesdale said Beaufort County's geography must be a factor in the argument. Since the county is largely rural, with schools far from similarly sized schools in other districts, sports teams often must travel hours for road games.

"If you finish school at 3:30 p.m. and then get on a bus at 4 p.m., you wouldn't get there in time for the game," she said.

Anne Bradley, whose daughter attends Hilton Head High, said she wouldn't want extracurricular activities to run later than they already do.

"It would take away from family time," she said "There would be no time for dinner around the table."

Some working parents rely on their high school-age children to care for younger siblings after school. If high schools dismiss after elementary schools, that poses a problem, Durbin said.

"These kind of issues always come up," he said. "One size doesn't always fit all."

## **EXPRESSING SKEPTICISM**

Some argue teenagers would simply go to bed later if school started later.

Bradley said she doesn't believe teenagers would get much extra rest.

"If they go to school an hour later, they'll be on their phones or on their Facebook," she said.

"They're not going to say, 'Let's get an extra hour of sleep.' "

Research doesn't necessarily bear that out. Wahlstrom's study, for example, found Minneapolis students slept about five hours more per week than peers at high schools that started earlier in the day.

Edmond Burnes, principal of Battery Creek High School, said he's not convinced delaying start times would have much effect on students at his school. He said much of the research he is familiar with involves schools in the north or Midwest whose demographics are different than those of Battery Creek.

"I'm kind of skeptical of the research because I think apples and oranges are being compared," he said. "It's not the same type of schools."

Burnes said he wants to see the breakdown of students' socioeconomic status and ethnicity before considering a change.

"I don't think our start time has anything to do with our student achievement," he said. "Any research would say that what has the most to do with student achievement is what's happening in the classroom."

Diane Murray, a nurse at Battery Creek, said part of high school is learning to overcome weaknesses. She said students need to adapt and find ways to make the schedule work for them, such as laying out clothes at night to save a few minutes in the morning.

"High school is about teaching skills so you can see students be successful in college and adult life," she said. "If they don't get up well in the morning, you teach them to manage their time."

Durbin said there might be other ways to accommodate students who genuinely have difficulty in morning classes.

For example, he said it might be possible let some students skip first period if they stay late in the day to take a class in the afternoon. He said that isn't something he has formally proposed, but it could work if enough students were interested and a teacher was willing to adapt to that schedule.

Wooley, of the American School Health Association, acknowledges the serious issues schools must consider before changing start times.

But the benefits are worthwhile and most obstacles are not insurmountable, she said.

"There are a lot of things that are unrelated to educational achievement that are factors in that decision," she said. "But if you look at it merely in terms of what's the best for the adolescent, it's a later start time."



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